

Ionic Equations

Symbols:

Solid =

Liquid =

Gas =

Precipitate =

dissolved in water =

***Common gases: NH_3 , O_2 , CO_2 , H_2 , Cl_2 , nonmetal oxides

***Common liquids: H_2O , Hg, Br_2 , alcohol

Most compounds are solid at room temperature

Most reactions are done in water so many compounds are
_____ as we use them in the lab

General solubility rules for compounds in water:

- 1) All family 1A and ammonium compounds are soluble
- 2) All nitrate and acetate compounds are soluble
- 3) All Cl^- , Br^- , and I^- compounds are soluble **except** Ag, Pb, and Hg
- 4) All sulfate compounds are soluble **except** Ca, Sr, Pb, Ba, Hg^{1+}
- 5) All sulfides, carbonates, phosphates, sulfites, hydroxides and chromates are insoluble **except** for family 1A and ammonium compounds

Use the solubility rules to determine if these compounds are soluble or insoluble in water:

NaCl $\text{Mg}(\text{OH})_2$ $\text{Fe}(\text{NO}_3)_2$ NiCrO_4 K_2SO_4 AgCl

Writing Ionic Equations:

Formula equation (balance and show symbol)



Ionic Equations (shows the physical state of everything)

Net Ionic Equation (includes **only** the ions that changed, ie. form a precipitate or a liquid like water or a gas)

***Does not include spectator ions

Practice Problems:

1) write the balanced formula equation for each reaction.

2) write the ionic equation (all reactants are (aq) unless otherwise noted)

*** split all aqueous compounds into positive and negative ions

*** do not split apart precipitates, gases, water, or solid elements

3) Write the net ionic equation



